Fishery Management Report No. 05-21

Alaska Peninsula-Aleutian Islands Management Area Herring Food and Bait Fishery Management Plan, 2005

by

Switgard Duesterloh

April 2005

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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ABSTRACT

The Pacific herring *clupea pallasi* food and bait fishery in the Alaska Peninsula-Aleutian Islands Herring Management Area can occur within the Unimak, Akutan, Unalaska, Umnak, and Adak Districts. This document describes how the fishery will be managed, the requirements of industry to participate in the fishery, and how to contact and relay information to the department. Historical harvests for the Dutch Harbor fishery as well as the 2005 season guideline harvest levels and harvest projections are presented. Guidelines for an exploratory herring fishery around Adak Island are presented. This document is intended as a guide for commercial herring harvesters, buyers, and tenders. Information regarding commercial herring fishing periods should be obtained from the department prior to fishing.

Key words: Pacific herring *clupea pallasi*, commercial food and bait fishery, Alaska Peninsula-Aleutian Islands, Dutch Harbor herring fishery, herring gillnet, herring seine, herring pound, Adak herring fishery, management plan

INTRODUCTION

This document is intended to provide commercial herring harvesters and buyers with management information and guidelines for participating in the Alaska Peninsula-Aleutian Islands Management Area Pacific herring *clupea pallasi* food and bait fishery.

The Alaska Peninsula-Aleutian Islands Herring Management Area consists of Bering Sea state waters extending west of Cape Menshikof and Pacific Ocean state waters extending west of Kupreanof Point to the International Dateline (Figure 1, 5AAC 35.500). In 1991, the Alaska Board of Fisheries (BOF) enacted regulations that allow food and bait herring fishing only in the eastern Aleutian Islands portion of the Alaska Peninsula-Aleutian Islands Management Area. Consequently, the Dutch Harbor food and bait herring fishery may take place only in eastern Aleutian Islands waters within the Unimak, Akutan, Unalaska, Umnak, and Adak Districts (Figure 2). In 2004, the BOF assigned a 500 ton quota to an exploratory herring gillnet fishery in state waters around Adak Island between 175°30' W longitude and 177°W longitude.

The global positioning system (GPS) will be used to identify district and section boundaries, closed waters, and regulatory fishing coordinates (5AAC 27.606).

The following ADF&G local offices can be contacted for information concerning the Dutch Harbor and Adak herring food and bait fisheries:

Sand Point:

Alaska Department of Fish and Game
P.O. Box 129
Sand Point, AK 99661

Phone: (907) 383-2066
Fax: (907) 383-2606
Record: (907) 383-2334

VHF 6 & 73
Single Side Band 3.230 MHz
KWB 362

Dutch Harbor

Alaska Department of Fish and Game
P.O. Box 920587
Dutch Harbor, AK 99692

Phone: (907) 581-1239
Fax: (907) 581-1572

VHF 9
Single Side Band 4.125 MHz
WIM 76

DUTCH HARBOR FOOD AND BAIT FISHERY

The Dutch Harbor herring food and bait fishery began in 1929 (Rounsefell 1930) and occurred annually through 1938. Harvests averaged 1,474 tons and ranged from 513 tons to 2,510 tons (Table 1).

No fishing occurred from 1939 through 1944 or from 1946 through 1980. From 1981 to 2004, catches ranged from 704 tons to 3,578 tons. From 1982 to 1991, an average of 8 vessels participated in the Dutch Harbor food and bait herring fishery. Between 1992 and 2000 effort increased to an average of 18 purse seine vessels. In 2001 to 2004, effort in the purse seine fishery decreased to an average of 15 permits. In 2003, 14 permit holders harvested 1,379 short tons of herring in 4 fishing periods using 6 vessels in a cooperative fishery. (Duesterloh and Burkey 2003; Tables 2 and 3). In 2004, 13 seine permit holders and two processors reached a cooperative agreement and used one vessel to harvest the desired amount of herring. Two independent permit holders harvested herring for alternative markets. Thirteen gillnet permit holders also formed a cooperative and used 7 of 9 registered vessels (Duesterloh and Burkey 2005). In recent years, all harvests have occurred in Unalaska Bay in the Unalaska District (Figures 3 and 4).

In 2001, the BOF established a herring gillnet fishery to allow gillnet fishers a practical opportunity to harvest herring from the Dutch Harbor allocation given the short (usually less than one hour) open periods required to manage the purse seine fishery. In 2004, the BOF increased the gillnet quota from 7% to 14% of the total Dutch Harbor herring food and bait allocation (5 AAC 27.655; ADF&G 2004).

The ADF&G will manage this fishery according to the Bering Sea Herring Fishery Management Plan (5 AAC 27.060; ADF&G 2003). Areas within Unalaska Bay that are closed to subsistence salmon fishing are also closed to herring fishing (5AAC 27.650 and 5AAC 01.375). Closed areas include waters between Unalaska and Amaknak Islands, from Agnes Beach to the "Bishops House," and waters within 250 yards of any anadromous stream.

REQUIREMENTS AND HARVEST PROJECTION FOR THE 2005 FISHERY

The department shall attempt to manage the Dutch Harbor food and bait herring fishery so that the harvest remains within the allocated 7% of the remaining allowable Togiak District herring sac roe harvest as determined under the provisions of the Bristol Bay Herring Management Plan (5 AAC 27.865). In order for the Dutch Harbor food and bait herring fishery to occur, each respective Western Alaska herring stock must surpass its respective BOF mandated spawning biomass threshold. Currently, the biomass of all stocks is forecasted to be above their respective threshold levels. Therefore, the outlook for a 2005 Dutch Harbor food and bait fishery is favorable. However, processors and fishers are advised that management of the 2005 fishery will be based on the estimated spawning biomass of each Bering Sea herring stock in 2005. The ADF&G will update biomass estimates for each stock as herring move into coastal waters during spawning migrations. The projected harvest allocation for the 2005 Dutch Harbor food and bait herring fishery is 1,239 short tons (Appendix B1; West 2004). This allocation was derived using the Bering Sea Herring Management Plan (5 AAC 27.060) and the preseason projected 2005 Togiak herring spawning biomass of 96,029 tons. The actual allocation will be established when the 2005 Togiak District herring spawning biomass is determined.

The Dutch Harbor food and bait allocation established under 5 AAC 27.865(b)(7), shall be divided between gear groups, 86% to the seine fishery and 14% to the gillnet fishery. These allocations are considered independent of each other so that one gear group may not harvest herring allocated to the other gear group. For the 2005 season, this results in projected harvest allocations of 1,066 tons for the purse seine and seine pound fishery and 173 tons for the gillnet fishery (Appendix B1).

A "rollover" provision was adopted during the 2001 BOF meeting (5AAC 27.655), as an incentive to the department to conduct a fishery that stays within the herring harvest allocation. During years when herring harvest surpasses the allocation, the amount of additional harvest shall be deducted from the next year's allocation by gear group. If necessary, any excess herring harvested during the 2005 season will be deducted from the allocation for the 2006 season.

REGISTRATION REQUIREMENTS FOR PERMIT HOLDERS, TENDERS, AND PROCESSORS

Each permit holder, tender operator, and buyer must register at the Alaska Department of Fish and Game office in Dutch Harbor or at a purse seine pre-fishery meeting in Dutch Harbor prior to catching, tendering, buying, or processing herring. No registrations will be accepted in Sand Point. The purse seine pre-fishery meeting is tentatively scheduled for July 14 at 5:00 PM. The actual time and location will be announced and distributed to harvesters and processors in late June or early July. The buyer and tender reporting requirements are listed in Appendix A. Permit holders are encouraged to check with their markets prior to fishing to determine which products are acceptable.

GILLNET AND SEINE SPECIFICATIONS

Gillnet mesh sizes up to three and one-half inches with no depth restrictions may be used in the Akutan and Unalaska Districts (5AAC 27.651(d)). The aggregate length of gillnets operated by a CFEC permit holder may not exceed 150 fathoms (5AAC 27.631). Purse seines are restricted to a maximum of 250 fathoms in length with no depth restrictions (5 AAC 27.632).

FISHING PERIODS FOR GILLNET VESSELS

The herring gillnet fishery can open by emergency order beginning *noon* June 24 and can extend until the guideline harvest level (GHL) is harvested or the department decides that an additional fishing period might exceed the GHL. The department may establish open periods by emergency order based on industry interest in conducting the fishery. The fishery will begin no later than July 1, or in June if herring are observed in the area. In order to prevent harvests from exceeding available processing capacity and the GHL, the department will limit fishing periods to 6 hours in length. In addition, effort levels and harvest rates will be considered when establishing time and area restrictions for gillnet harvesters. The fishery will be conducted in the waters of Unalaska Bay.

GILLNET CATCH REPORTING

Gillnet permit holders wishing to harvest herring must register with ADF&G personnel in Dutch Harbor prior to fishing. Even if no herring are harvested or vessels are not actively fishing, permit holders and processors will be required to report herring harvest daily or until registration from the fishery is withdrawn. Permit holders and processors will be required to contact the ADF&G in Dutch Harbor upon harvest or delivery of herring. If conditions arise which require additional time for permit holders to report herring harvests the department should be informed of the situation prior to fishing operations. Catch reporting instructions will be explained in detail during vessel and processor registration.

FISHING PERIODS FOR PURSE SEINE VESSELS

The initial purse seine herring fishing period may occur as early as *noon* on July 15. Unless harvesters form a cooperative, ADF&G anticipates that purse seine fishing periods will be short

in duration and the fishery will be conducted within portions of Unalaska Bay. Short openings over several days may be required to prevent overharvest. Before the next fishing period will be announced, a catch report from each Commercial Fisheries Entry Commission (CFEC) permit holder or tender operator, that reflects each vessel's harvest, will be required after each fishing period, whether or not herring were harvested. Generally, there will be a 12-hour closure between fishing periods to allow permit holders the opportunity to deliver their catch and the ADF&G time to assess the harvest and processing capacity. A shorter closed period may be allowed if the department promptly receives harvest reports from all permit holders. The department may cancel or extend a fishing period with as little as 5 minutes notice.

If the total GHL is less than 150 tons per vessel the department will be conservative in the length of fishing periods and the size of the area open to commercial fishing. The department will not require fishermen to form a cooperative harvesting agreement; however, if the industry decides to do so, the department will be open to management options that will minimize the risk of overharvesting the resource.

The department will try to assess herring biomass in the area prior to opening the fishery. Harvesters and spotter pilots are encouraged to relay biomass information to the department personnel prior to the opening. Past cooperation has proven valuable in evaluating stock status and gaining management information.

PURSE SEINE CATCH REPORTING

Permit holders, tender operators, and processors must provide accurate catch information after each fishing period. Tender operators must provide accurate estimates of herring onboard their tender. Processors must provide accurate estimates of delivered herring.

Inseason emergency orders will be broadcasted on VHF channel 12. VHF channel 12 will be the designated department channel for conducting herring fishing communications during the fishery. Fishers, tenders, and processors should monitor this channel.

GEAR TESTING

Prior to the opening of the fishery, purse seine gear may be tested during daylight hours until 5:00 PM July 14. Gear testing will only be allowed between Hog Island and Amaknak Island in view of the ADF&G Dutch Harbor office or within one-half mile of the Delta-Western Fuel Dock in Dutch Harbor. Permit holders must contact an ADF&G representative in Dutch Harbor on VHF channel 12 or in person prior to setting gear and must designate a specific set location and time. In addition, any fish caught during gear testing must immediately be released unharmed. After the fishery has been closed and all herring on the vessel have been offloaded, participants may, after notifying the department, set their net to straighten, clean, and organize their gear in the designated areas.

HERRING POUND FISHERY

In 2004, the BOF established a herring seine pound fishery as part of the Dutch Harbor food and bait fishery. One hundred tons of herring were allocated to this fishery. This allocation is deducted from the purse seine allocation. A person planning to operate a pound is required to provide the ADF&G detailed plans describing the design and operation of the pound, including exact location and timing of pound operation. These plans must be received by the department in a timely manner to allow preparation of a Commissioner's Permit for pound operation. A permit

holder intending to operate a pound must register with the ADF&G in Dutch Harbor or Sand Point no later than 4:30 PM, June 30.

Herring for pounding may be harvested during purse seine fishery openers. In addition, the department may, by emergency order, establish separate fishing periods for the pound fishery as early as June 10 but no later than August 31. If the entire herring pound allocation is not utilized by the end of the seine fishery and there is no more interest by pound fishers to harvest any remaining allocation, the remaining allocation will be reallocated to the purse seine fishery. If the allocation in the pound fishery is exceeded, the permit holders will be required to release excess herring unharmed before they are pounded. If the seine fishery exceeds the GHL, the penalty provision (5 AAC 27.655(b)) will be applied to the next years' seine GHL after the GHL for the pound fishery is allocated. If no pound fishery permits were requested, the pound fishery GHL will be available to the seine fishery. If two or more permit holders register for the pound fishery, the pound allocation is divided equally between them.

FISH TICKETS

Permit holders must provide specific harvest locations (statistical area and specific landmark) to buyers, so that they can be recorded on fish tickets. Fish tickets must be delivered, by mail or in person, to the Sand Point ADF&G office within 10 days after the closure of the fishery or delivered in person immediately following the fishery to the Dutch Harbor ADF&G office. If ten days is insufficient time to submit fish tickets, other arrangements may be made by contacting the ADF&G in Sand Point.

COMMERCIAL HARVEST SAMPLING

Cooperation by harvesters, tender operators, and processors will be appreciated when ADF&G personnel request herring samples from the commercial catch. These samples will be used to monitor age, sex, and size composition of the stock.

TEST FISHING

The department will attempt to conduct a test fishery in 2005. The test fishery will provide the department with valuable stock assessment information and help pay the associated costs of analyzing data and managing the fishery. In addition, the test fish program will provide age, weight, and length samples of herring present in the Dutch Harbor area. In the last two years the department has had to curtail management of this fishery because of the lack of industry interest in the test fishery. The department will distribute test fish bid forms to processors in June and early July. Fishermen interested in test fishing are encouraged to contact their processors.

SELENDANG AYU OIL SPILL

On December 8, 2004, the freighter *Selendang Ayu* grounded and broke apart between Skan Bay and Spray Cape, releasing an estimated 321,000 gallons of bunker fuel oil and an undetermined amount of marine diesel into the environment (Unified Command, *M/V Selendang Ayu* Grounding, 2004). The presence of oil posed a threat of contamination to fishing gear, fishery resources, and potential fishery harvests. The department closed state-waters between Cape Kovrizhka (53^{o} 50.67' N lat.; 167^{o} 09.00' W long.) and Spray Cape (53^{o} 36.83' N lat.; 167^{o} 09.33' W long.) to all commercial fishing effective at 12:01 AM January 1, 2005 and until further notice.

At the time of release of this management plan, the department does not anticipate an impact of the oil spill on the 2005 Dutch Harbor herring fishery. Because of the migratory behavior of herring, the time of their arrival in Dutch Harbor and their feeding ecology, the probability of oil contamination in Dutch Harbor herring is believed to be minimal. The herring fishery will be conducted in Unalaska Bay and the department will confirm that no oil is evident in the area prior to opening the fishery. If the presence of oil warrants concerns of contamination of fishing gear or resource, the fishery will be closed.

ADAK EXPLORATORY FISHERY

Beginning in 2004, the BOF authorized an exploratory fishery for herring around Adak Island using gillnet gear with an allocation of 500 tons (5AAC 27.657; ADF&G 2004). The department has no information about the size, timing, or condition of herring stocks in the Adak area. The exploratory fishery is intended to provide ADF&G with stock condition and age structure data and allow development of a fishery. Under this provision, both a food and bait fishery and/or a sac roe fishery are possible. The department may station a representative in Adak to manage the exploratory fishery and collect and process herring samples. A request for bids to conduct a herring test fishery may be put forth by ADF&G. The general Alaska Peninsula-Aleutian Islands herring fishery regulations apply to the Adak exploratory fishery.

REGISTRATION REQUIREMENTS FOR PERMIT HOLDERS, TENDERS, AND PROCESSORS

Each permit holder, tender operator, and buyer must register and obtain a Commissioners permit for the Adak herring fishery at the ADF&G office in Sand Point or Dutch Harbor prior to catching, tendering, buying, or processing herring. The buyer and tender reporting requirements are located in Appendix A. Permit holders are encouraged to check with their markets prior to fishing to determine which products are acceptable. All crewmembers must have a valid crew member license or a CFEC permit card for any fishery.

FISH TICKETS AND CATCH REPORTING

Permit holders must provide specific harvest locations (statistical area and specific landmark) to buyers, so that they can be recorded on fish tickets. Fish tickets must be received, by mail or fax, at the Sand Point ADF&G office within 10 days after the closure of the fishery. If 10 days is insufficient time to submit fish tickets, other arrangements may be made by contacting the ADF&G in Sand Point. Even if no herring are harvested or vessels are not actively fishing, permit holders and processors will be required to report herring harvest daily or until registration from the fishery is withdrawn. If conditions arise which require additional time for permit holders to report herring harvests the department should be informed of the situation prior to fishing operations.

COMMERCIAL HARVEST SAMPLING

Cooperation by harvesters, tender operators, and processors will be appreciated when ADF&G personnel request herring samples from the commercial catch. These samples will be used to monitor age composition and collect information about the herring stocks.

FISHING SEASONS, AREA, GEAR AND OPERATION

The exploratory herring fishery in the Adak area is operated under the regulations of the Alaska Board of Fisheries for Statewide Commercial Herring Fishing in Alaska. Specifically, the following regulations apply:

1. Herring may be taken in state waters (within 3 miles of shore) of the Adak District between 175° 30' W longitude and 177° W longitude (Figure 5).
2. Herring may be taken only during fishing periods established by emergency order

   (1) in the sac roe fishery, from April 15 through *noon* July 24;

   (2) in the food and bait fishery, from *noon* June 24 through February 28.
3. The aggregate length of gillnets operated by a CFEC permit holder may not exceed 150 fathoms.
4. The permit holder must be physically present while the gillnet is being fished.
5. Each set gillnet in operation must be anchored and buoyed at both ends. Each buoy must be plainly and legibly marked with the permanent vessel license plate number (ADF&G number) of the vessel operating the gear. The buoy may bear only a single number and this number must be that of the vessel used in operating the gear. The numbers must be painted on the top one-third of the buoy in numerals at least four inches in height, one-half inch in width and in a color contrasting to that of the buoy. The buoy markings must be visible on the buoy above the water surface.
6. Notwithstanding 5 AAC 27.050(c), gillnet mesh sizes up to three and one-half inches may be used.

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TABLES AND FIGURES

Table 1.–Alaska Peninsula-Aleutian Islands Area Dutch Harbor herring food and bait fisheries historical summary for the purse seine fishery, 1929-2004**.**

Year	Harvest in Short Tons	Vessels Making Landings	Number Landings	Tons [a] Per Boat	Tons [a] Per Landing	Price [a] Per Ton	Exvessel Value (Thousands)	Exvessel Per Vessel (Thousands)
1929	1,259			–	–	–		
1930	1,916			–	–	–		
1931	1,056	26		–	–	–		
1932	2,510	30		–	–	–		
1933	1,585	38		–	–	–		
1934	1,533			–	–	–		
1935	2,412			–	–	–		
1936	1,379			–	–	–		
1937	579			–	–	–		
1938	513			–	–	–		
1939-44	No Fishery			–	–	–		
1945	75			–	–	–		
1946-80	No Fishery							
1981	704	[b]	16	352	44		211	[b]
1982	3,565	7	95	509	38	300	1,020	146
1983	3,567	8	96	446	37	232	828	104
1984	3,578	9	61	398	59	210	751	83
1985	3,480	6	78	560	45		564	94
1986	2,394	7	53	342	45		600	86
1987	2,503	8	45	373	56		751	94
1988	2,004	8	59	251	34		505	63
1989	3,081	9	69	342	45		873	97
1990	820	7	8	117	103	350	287	41
1991	1,325	8	18	166	74		398	50
1992	1,949	11	26	177	75		573	52
1993	2,790	13	32	215	87		837	64
1994	3,349	14	65	239	52		1,005	72
1995	1,748	14	24	125	73		524	37
1996	2,239	24	29	93	77		672	28
1997	1,950	26	63	75	31		585	23
1998	1,994	22	22	91	91		598	27
1999	2,398	21	71	109	34	400-600	1,038	49
2000	2,014	20	28	88	72	300-500	671	34
2001	1,332	14	16	95	83	300-500	406	29
2002	2,617	12	14	218	187	300-450	909	76
2003	1,379	6 [c]	16	230	86	50-400	342	24 [c]
2004	1,035	3 [d]	17	345 [d]	61	100-500	309	21 [d]
1929-1938 Average	1,474			–	–	–		
1994-2003 Average	2,102	17	35	136	79	300	675	40

[a] Information not available for years 1929-1938; 1954.

[b] This information can not be released due to state confidentiality requirements.

[c] Fishery was conducted by a cooperative fishery of 14 permit holders using 6 vessels. Exvessel values were calculated per permit holder.

[d] Thirteen seine permit holders formed a cooperative using 1 vessel, in addition, 2 seine permit holders fished outside of the coop. Exvessel values are calculated per permit holder.

Table 2.–Aleutian Islands area Dutch Harbor herring food and bait fisheries historical summary for the gillnet fishery, 2001-2004.

Year	Harvest in Short Tons	Number of Vessels Making Landings	Number Landings	Tons Per Boat	Tons Per Landing	Price Per Ton	Exvessel Value (Thousands)	Exvessel Value Per Vessel (Thousands)
2001	107	6	25	18	4	300-500	54	9
2002	134	13	37	10	4	400	54	4
2003	108 [a]	13	23	8	5	400	35 [a]	3
2004	216	7 [b]	37	31	6	300	65	5 [b]
Average 2001-2003	116	11	28	12	4	400	47	5

[a] Twenty tons were not purchased because of spoilage.

[b] In 2004, 12 permit holders used 7 of 9 registered vessels, exvessel values are reported per permit holder.

Table 3.–Alaska Peninsula-Aleutian Islands Area Dutch Harbor commercial herring food and bait fishery, including fishing dates, days fished, preseason Togiak spawning biomass, guideline harvest level, harvest, and number of vessels fishing, 1981-2004.

Year	Fishing Dates First	Fishing Dates Last	No. of Calendar Days with Fishing Periods	Preseason Togiak Spawning Biomass Short Tons	GHL Short Tons	Food & Bait Harvest Short Tons	Percent Togiak Spawning Biomass Harvested	Number Vessels Fishing
1981	Aug 3	Aug 23	21	159,000	None	704	0.4	[a]
1982	Aug 5	Sep 12	39	98,000	None	3,565	3.6	7
1983	Jul 23	Sep 6	46	142,000	3,525 [b]	3,567	2.5	8
1984	Jul 17	Jul 27	11	115,000	3,525 [b]	3,578	3.1	9
1985	Jul 17	Aug 11	26	132,000	3,525 [b]	3,480	2.6	6
1986	Jul 16	Jul 28	13	96,000	2,453	2,394	2.5	7
1987	Jul 16	Jul 23	4	88,000	2,332 [c]	2,503	2.8	9 [c]
1988	Jul 16	Sep 18	21	132,000	3,100 [c]	2,004	1.5	8 [c]
1989	Jul 16	Aug 5	19	100,108	3,100 [c]	3,081	3.1	9 [c]
1990	Aug 15	Aug 15	<1	72,000	903	820	1.1	7
1991	Jul 17	Jul 17	<1	83,229	931	1,325	1.6	8
1992	Jul 16	Jul 28	5	60,214	1,940	1,949	3.2	11
1993	Jul 16	Jul 16	<1	164,135	2,193	2,790	1.7	13
1994	Jul 16	Jul 19	4	165,747	2,215	3,349	2.0	16
1995	Jul 16	Jul 16	<1	149,093	1,982	1,748	1.2	18
1996	Jul 16	Jul 16	<1	135,585	1,793	2,239	1.7	25
1997	Jul 15	Jul 19	5	125,000	1,645	1,950	1.6	26
1998	Jul 16	Jul 16	<1	121,054	1,590	1,994	1.6	22
1999	Jul 16	Jul 20	4	156,200	2,082	2,398	1.5	22
2000	Jul 15	Jul 15	<1	130,904	1,728	2,014	1.5	23
2001								
Gillnet	Jun 25	Jul 11	9	119,818	110	107	0.1	6
Seine	Jul 15	Jul 16	2	119,818	1,462	1,332	1.1	14
2001 Total	Jun 25	Jul 16	11	119,818	1,572	1,439	1.2	20
2002								
Gillnet	Jul 5	Jul 17	12	120,196	110	134	0.1	13
Seine	Jul 15	Jul 15	<1	120,196	1,468	2,617	2.2	16
2002 Total	Jul 5	Jul 17	12	120,196	1,578	2,751	2.3	29
2003								
Gillnet	Jun 24	July 7	10	126,213	116	108	0.1	13
Seine	Jul 16	Jul 19	4	126,213	1,546	1,379	1.1	14 [d]
2003 Total	Jun 24	Jul 19	14	126,213	1,662	1,546	1.2	27
2004								
Gillnet	Jul 1	Jul 13	13	143,124	266	216	0.2	12 [d]
Seine	Jul 15	Aug 2	14	143,124	1,533	1,035	0.7	14 [d]
2004 Total	Jul 1	Aug 2	27	143,124	1,899	1,251	0.9	26 [d]
1995-2004 Average				132,719	1,753	1,933	1.5	24 [d]

[a] Number may not be released due to state confidentiality requirements..

[b] Harvest ceiling of 3,525 established by Alaska Board of Fisheries.

[c] Purse seine gear only used to harvest herring from 1981-2000 except that deliveries were made by one gillnet vessel in 1987 and 1988 and two gillnet vessels in 1989.

[d] In fisheries with cooperative agreements the total number of permit holders is reported.

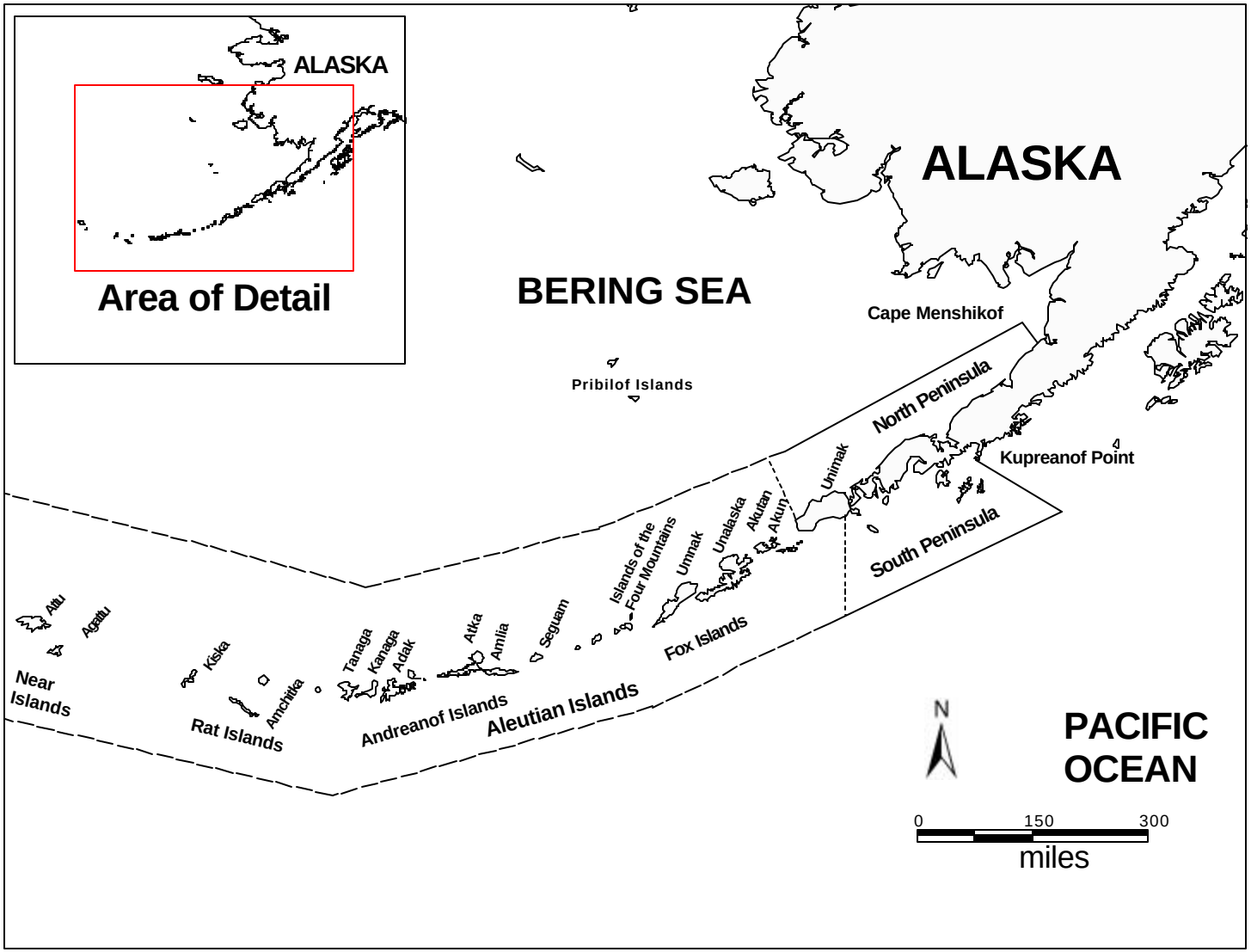

Figure 1.–Map of the Alaska Peninsula-Aleutian Islands Herring Management Area.

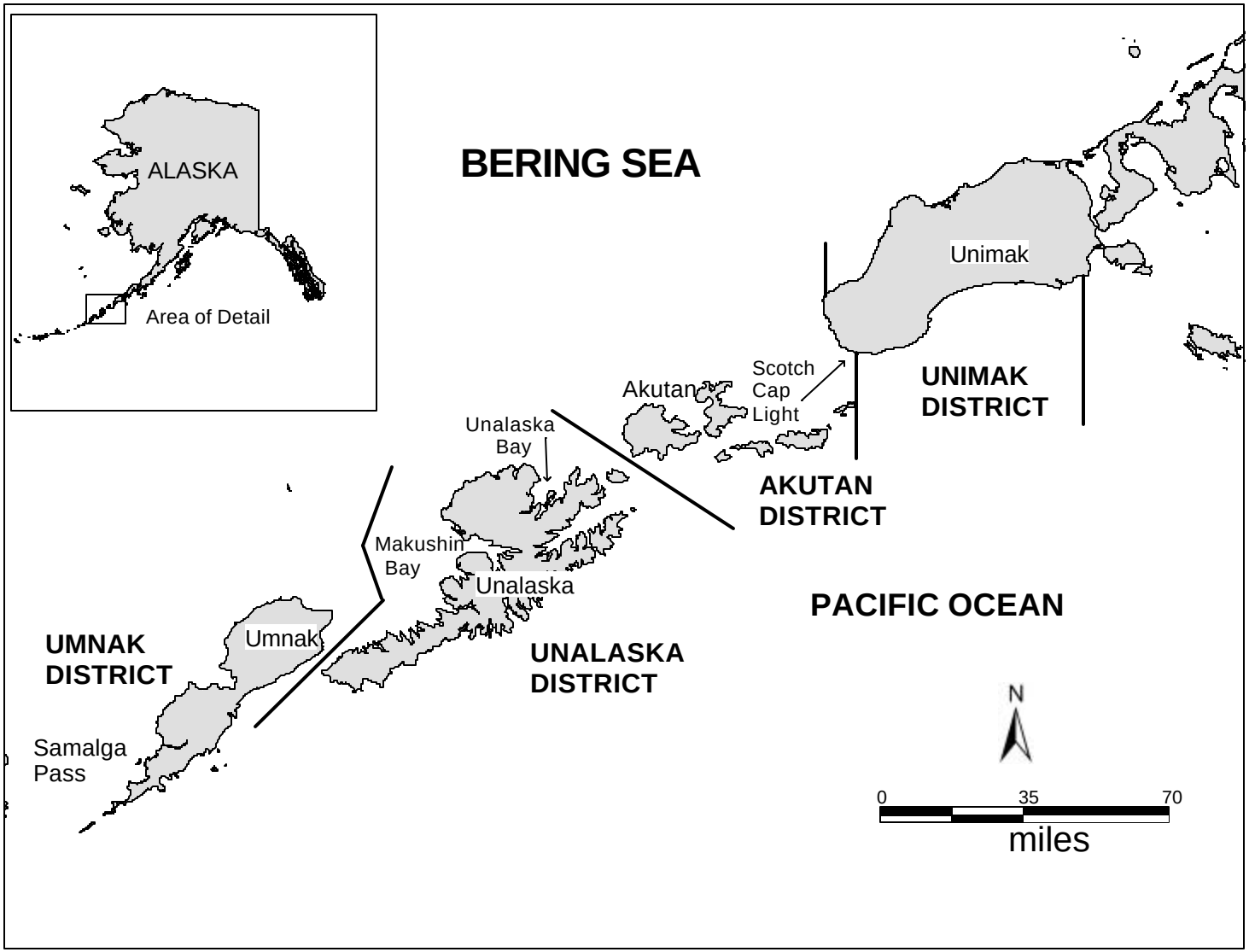

Figure 2.–Map of the eastern Aleutian Islands from Samalga Pass to Unimak Island illustrating the herring fishing district boudaries.

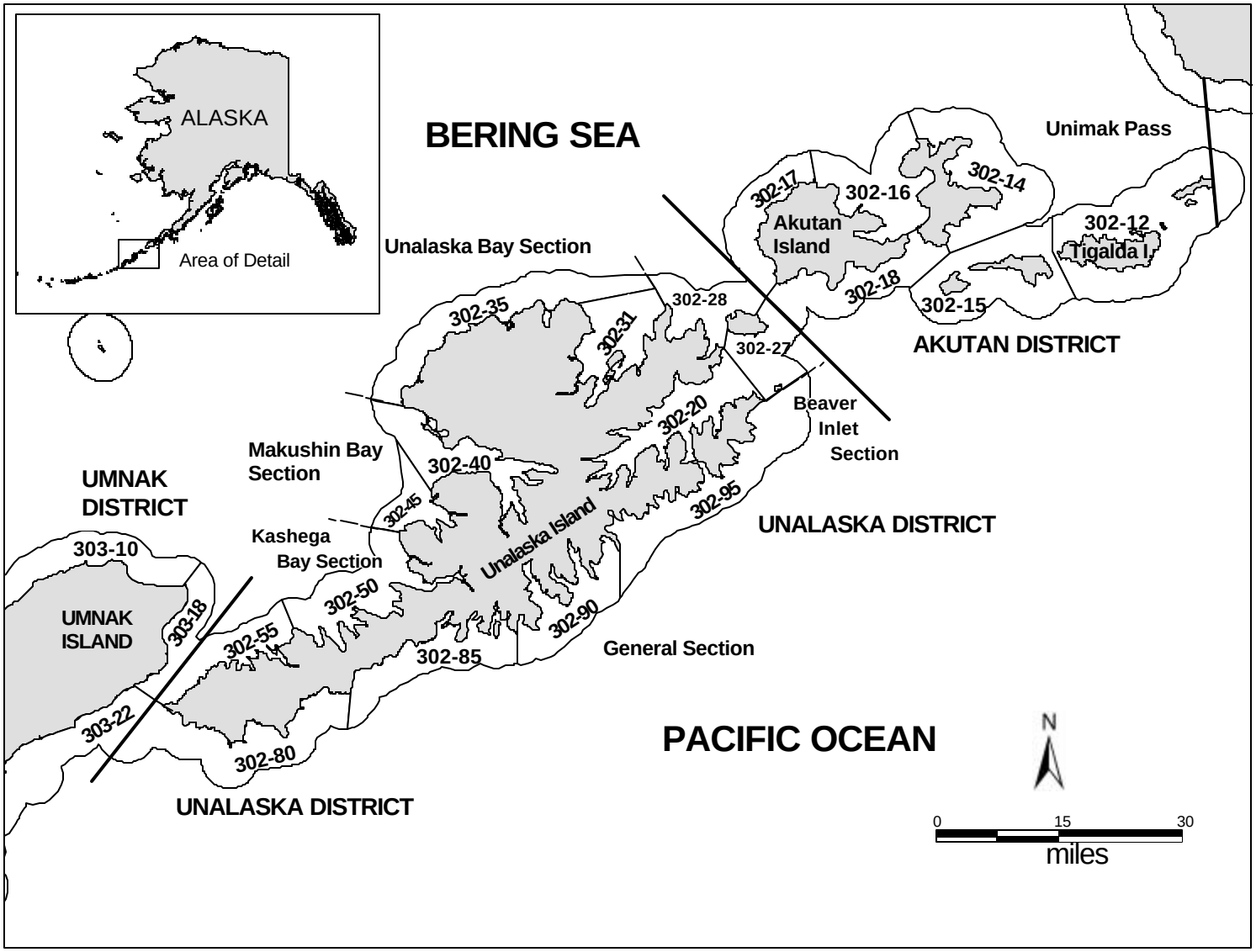

Figure 3.–Map of the Aleutian Islands from Tigalda Island to Umnak Island illustrating the herring fishing district boundaries and statistical areas.

Figure 4.–Map of Unalaska Island from Beaver Inlet to Makushin Bay, with the 2005 herring fishery open area.

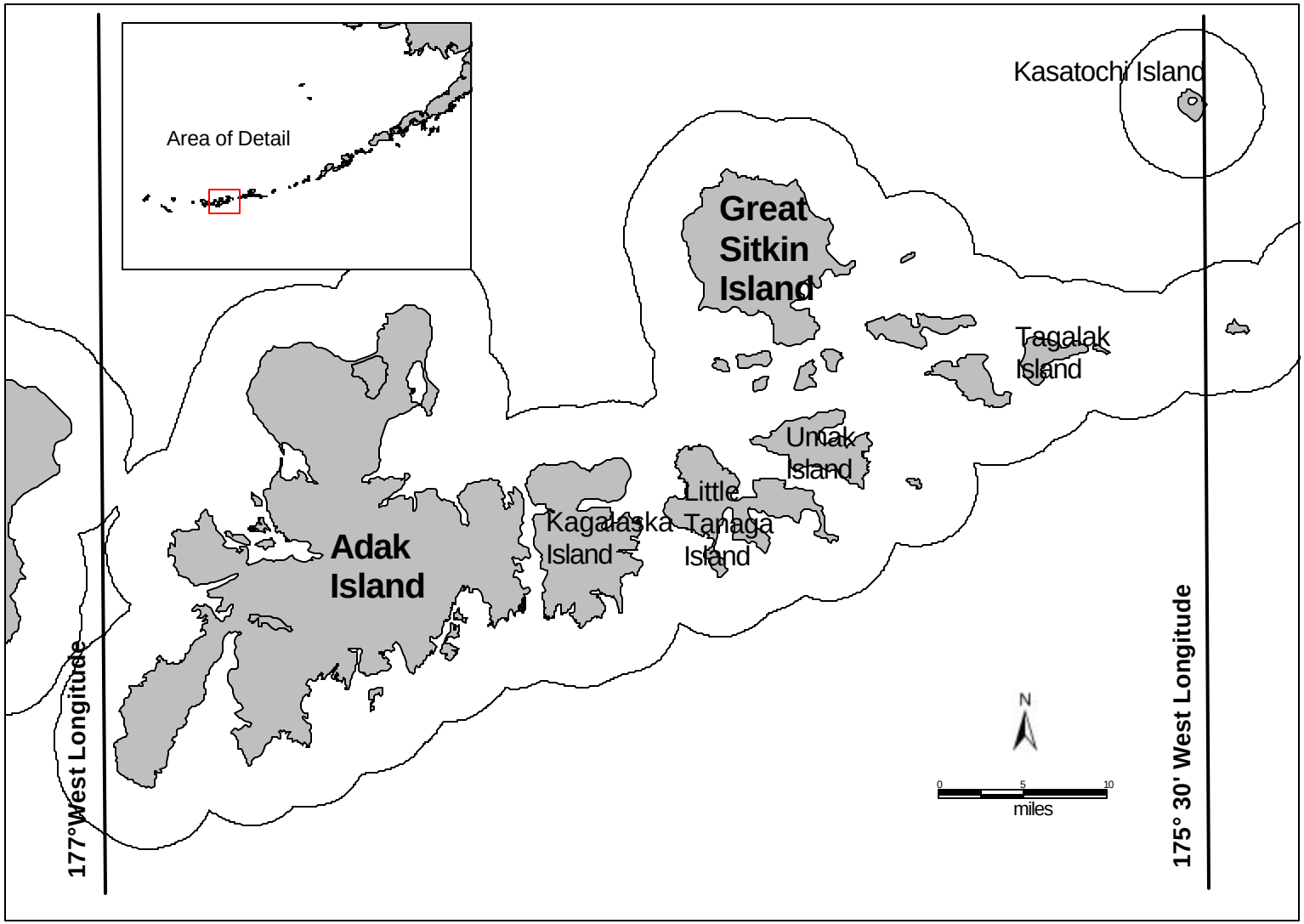

Figure 5.–Map of Adak Island area illustrating the boundaries of exploratory fishery.

APPENDIX A:
BUYER AND TENDER REPORTING REQUIREMENTS

Appendix A1.–Buyer and tender reporting requirements.

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5 AAC 27.662 BUYER AND TENDER REPORTING REQUIREMENTS.

In addition to the requirements of 5 AAC 39.130(f) each tender operator and each buyer or his agents shall report in person to and register with a local representative of the department upon arrival in the statistical area before commencing operations and before changing location of the operation. Each buyer shall:

(1) identify all vessels to be employed in transporting or processing herring and shall register such vessels with a local representative of the department located in the statistical area before transporting or processing of herring;

(2) make daily reports of all herring purchased from fishermen, and other processing records as specified by a local representative of the department; and

(3) submit fish tickets before departure from the area and no later than 10 days after termination of buying operations in the area, or as otherwise specified by a local representative of the department.

APPENDIX B: FORECASTS

Appendix B1.–Forecasted harvest allocation for Togiak sac roe and Dutch Harbor food and bait herring fisheries, 2005.

This forecast is for the "Dutch Harbor": Unimak, Akutan, and Unalaska Districts and that portion of the Umnak District located east of Samalga Pass, food and bait herring fishery (Frederick West, ADF&G, Anchorage, memo January 10, 2005).

Harvest Allocation of the 2005 Forecasted Pacific
Herring Run Biomass, Togiak District, Bristol Bay

	Biomass (Short Tons)	Harvest (Short Tons)
2005 Forecasted Biomass	96,029	
Exploitation @ maximum 20%		
For Total Allowable Harvest		19,206
Togiak Spawn-on-Kelp Fishery		
(Fixed Allocation)		1,500
Remaining Allowable Harvest		17,706
Dutch Harbor Food/Bait Allocation[a]		***1,239***
Purse Seine Allocation[b]		**966**
Pound FisheryAllocation		**100**
Gillnet Allocation[c]		**173**
Remaining Allowable Harvest for		
Togiak District Sac Roe Fishery		16,467
Purse Seine Allocation . . . 70.0%		11,527
Gillnet Allocation 30.0%		4,940

[a] The Dutch Harbor Food/Bait allocation is 7% of the remaining allowable harvest.
[b] The purse seine allocation for 2005 is 86% of the Dutch Harbor allocation minus the pound fishery allocation of 100 tons.
[c] The gillnet allocation for 2005 is 14% of the Dutch Harbor allocation

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2005 Togiak Herring Forecast Summary

Poor weather conditions throughout the herring fishery in 2004 prevented an accurate aerial assessment of the total run biomass. Therefore, inseason management was based on the preseason forecast of 143,124 tons. Herring were first reported in the district on April 22, when approximately 13 tons were documented on the east side of Tongue Point. The first substantial biomass was observed on April 25 with a majority of the estimated 20,000 tons concentrating in Togiak and Kulukak Bays. Poor visibility and weather conditions only allowed sporadic surveys until May 3 when the peak estimate of 34,607 tons was observed. Poor weather conditions continued to hamper aerial biomass estimates for the remainder of the season and the last survey on May 25 only observed approximately 154 tons. It is uncertain whether herring spawned less, spawned deeper, or spawn was just mixed in turbid water, but observations of herring spawn were down in 2004 with only 36 linear miles as compared to the recent 10 year average of 54 miles.

A temporal change in age composition from older to younger herring is typically observed in the fishery but age-7, -8, and -11 herring predominated throughout. This may signify that the new recruit classes of herring are weak or that these age classes did not arrive during the commercial fishery. Post-fishery sampling no longer occurs like it did in the 1980s so younger fish which typically make up the tail end of the run are often undetected. Poor weather and visibility prevented surveys during the latter portion of the harvest and during the post-season aerial surveys. No surveys were conducted between May 7 and May 20 contributing to the difficulty of assessing the younger age classes, age-4 and –5 herring.

Age-structured analysis (ASA) has been used since 1993 to forecast the Togiak herring population. This methodology estimates population abundance using catch and age composition data in conjunction with biomass estimates selected from the best aerial survey years.

Samples from non-selective gear (commercial purse seine and test purse seine) were used to assess the age composition of the run biomass. Commercial purse seine catch and test fish samples ranged from age-4 to age-17. Age-8 and age-7 herring were the most prevalent and represented 61% of the harvest biomass and 68% of the abundance. Age-11 herring followed with 9% of the biomass and 7% of the abundance.

Inclement weather conditions and poor visibility has plagued the herring fishery in recent years preventing an accurate aerial biomass estimate since 1999 to confirm the strength of the total run biomass. Therefore, we took a conservative approach in forecasting the 2005 biomass. The 2001 total run biomass estimate was determined to be high and was reduced from 146,000 tons to 115,000 tons in the model. Staff felt the recruit classes of herring were not abundant as expected in subsequent returns. This change lowered the historical biomass estimates, which resulted in a reduced 2005 forecast.

The forecasted herring biomass for the Togiak District in 2005 is 96,029 tons. Returns from the 1996, and 1997 year classes (ages-9, and-8, respectively) are expected to dominate with 66% of the biomass and 61% of the abundance in numbers of fish (Figure 1). Age-4 herring from year

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class 2001 are expected to follow in magnitude with 9% of the biomass and 17% of the abundance. A Ricker stock-recruitment model with an environmental variable of Southeast Bering Sea sea surface temperature was used to forecast the 2005 age-4 abundance. The forecasted return of age-4 and -5 herring are more uncertain than other ages because of the limited sample size of age-4 fish, and because new recruits are not confirmed until they return as age-5 herring. Age-12 herring from year class 1993 are also expected to abound with 7% of the biomass and 4% of the abundance. The forecasted individual average weight of the harvest biomass is 334 g. Simple linear regression models were used to forecast the weight of each age class based on their weights the previous year.

Biomass of the Togiak herring spawning population has been estimated with aerial surveys since the late 1970's, concurrent with the development of the sac-roe fishery. Peak biomass was observed during the 1986 and 1987 seasons when the large classes from brood years 1977 and 1978 fully recruited into the spawning population as age-8 herring. The 1977 and 1978 year classes dwarfed the magnitude of subsequent year classes. Modest recruitment events were evident in the 1987, 1988, 1996 and 1997 year classes.

Frederick West
Bristol Bay Research Biologist
Anchorage

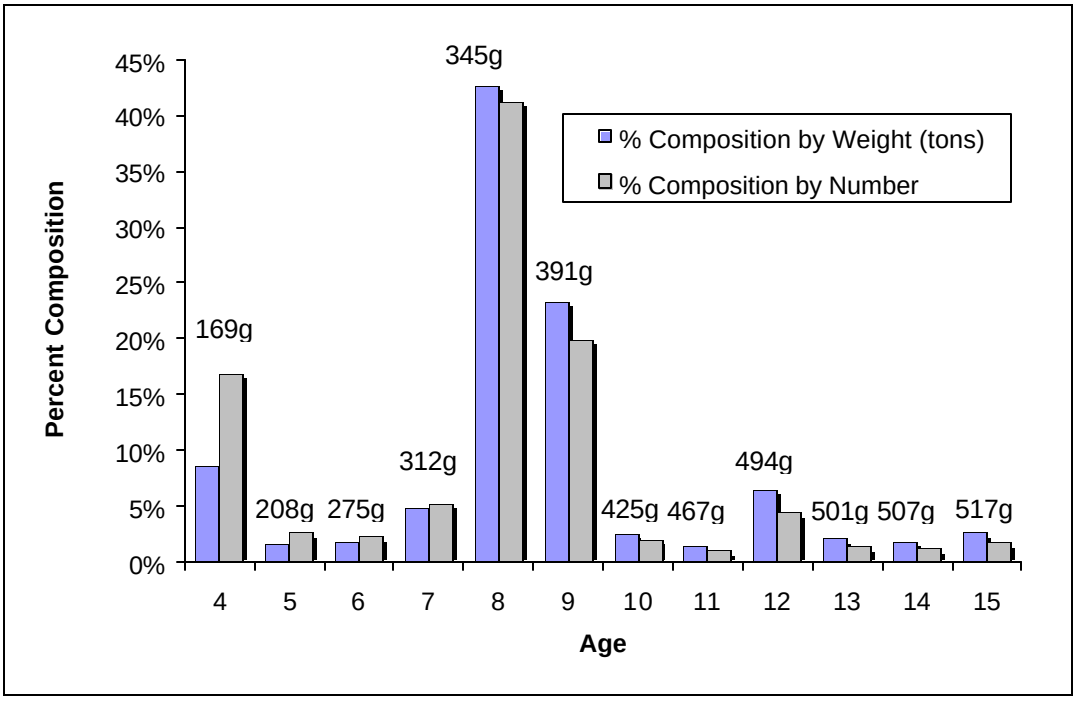

Figure B1.–Forecasted age composition by weight and number for the 2005 Togiak herring return. Forecasted average weight (grams) by age is also presented.